AMENDMENTS TO THE CLAIMS

1. (Currently amended) A radar comprising:

a transmitter ~~transmitting and receiving means for~~ transmitting a transmission signal <u>having an</u> alternately repeating ~~an~~ upstream-modulation section in which a frequency gradually increases and a downstream-modulation section in which the frequency gradually decreases<u>;</u> ~~and for~~

<u>a receiver</u> receiving a reception signal serving ~~as~~ <u>that is</u> a reflection signal of the transmission signal reflected from a target;

<u>an analyzer</u> ~~frequency analyzing means for~~ acquiring data on a frequency spectrum of a beat signal for the transmission signal and the reception signal;

<u>an extractor</u> ~~pair extracting means for~~ extracting, from among a plurality of first projecting portions appearing in the frequency spectrum of the beat signal in the upstream-modulation section and a plurality of second projecting portions appearing in the frequency spectrum of the beat signal in the downstream-modulation section, a pair of projecting portions <u>resulting from</u> ~~caused by~~ reflection of the transmission signal by ~~an identical~~ <u>the</u> target; and

<u>a detector</u> ~~means for~~ detecting a distance to the target and a relative speed with respect to the target in accordance with frequencies of <u>the extracted pair of</u> ~~two~~ projecting portions ~~forming the pair~~, wherein

the <u>extractor further</u> ~~pair extracting means includes means for~~ predicting a center frequency of peak frequencies of <u>the</u> first and second projecting portions at a ~~timing a certain period of~~ <u>point in</u> time after a predetermined <u>time based on</u> ~~timing in accordance with~~ a peak frequency of ~~a~~ <u>the</u> first projecting portion at the predetermined

time, ~~timing~~ and ~~for~~ extracting ~~a~~ the pair of projecting portions acquired at the ~~timing~~ ~~after the certain period of~~ point in time in accordance with the center frequency.

    2. (Currently amended) A radar comprising:

    a transmitter ~~transmitting and receiving means for~~ transmitting a transmission signal having an alternately repeating ~~an~~ upstream-modulation section in which a frequency gradually increases and a downstream-modulation section in which the frequency gradually decreases; ~~and for~~

    a receiver receiving a reception signal serving ~~as~~ that is a reflection signal of the transmission signal reflected from a target;

    an analyzer ~~frequency-analyzing means for~~ acquiring data on a frequency spectrum of a beat signal for the transmission signal and the reception signal;

    an extractor ~~pair-extracting means for~~ extracting, from among a plurality of first projecting portions appearing in the frequency spectrum of the beat signal in the upstream-modulation section and a plurality of second projecting portions appearing in the frequency spectrum of the beat signal in the downstream-modulation section, a pair of projecting portions resulting from ~~caused by~~ reflection of the transmission signal by ~~an identical~~ the target; and

    a detector ~~means for~~ detecting a distance to the target and a relative speed with respect to the target in accordance with frequencies of the extracted pair of ~~two~~ projecting portions ~~forming the pair~~, wherein

    the extractor further ~~pair-extracting means includes means for~~ predicting a center frequency of peak frequencies of the first and second projecting portions at a

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~~timing a certain period of~~ <u>point in</u> time before a predetermined <u>time based on</u> ~~timing in accordance with~~ a peak frequency of ~~a~~ <u>the</u> second projecting portion at the predetermined <u>time,</u> ~~timing~~ and ~~for~~ extracting ~~a~~ <u>the</u> pair of projecting portions acquired at the ~~timing before the certain period of~~ <u>point in</u> time in accordance with the center frequency.

3. (Currently amended) The radar according to Claim 1 ~~or 2~~, wherein

the <u>extractor</u> ~~pair-extracting-means~~ extracts the pair of projecting portions by using, as the ~~certain period of~~ <u>point in</u> time, nT satisfying a relationship, nT $\approx$ fo/(2ΔF·fm)<u>, wherein</u> ~~(here,~~ n represents a ~~desired~~ natural number~~,)~~~~, where~~ T represents a measurement cycle in which ~~the~~ frequency analysis is performed, 1/fm represents a modulation cycle ~~serving as a cycle~~ including the upstream-modulation section and ~~an adjacent~~ <u>the</u> downstream-modulation section, fo represents a center frequency of the transmission signal, and ΔF represents a width of a frequency shift in the upstream-modulation section and the downstream-modulation section.

4. (Currently amended) A radar comprising:

a <u>transmitter</u> ~~transmitting and receiving means for~~ transmitting a transmission signal <u>having an</u> alternately repeating ~~an~~ upstream-modulation section in which a frequency gradually increases and a downstream-modulation section in which the frequency gradually decreases<u>;</u> ~~and for~~

a <u>receiver</u> receiving a reception signal serving ~~as~~ <u>that is</u> a reflection signal of the transmission signal reflected from a target;

an analyzer ~~frequency analyzing means for~~ acquiring data on a frequency spectrum of a beat signal for the transmission signal and the reception signal;

an extractor ~~pair extracting means for~~ extracting, from among a plurality of first projecting portions appearing in the frequency spectrum of the beat signal in the upstream-modulation section and a plurality of second projecting portions appearing in the frequency spectrum of the beat signal in the downstream-modulation section, a pair of projecting portions <u>resulting from</u> ~~caused by~~ reflection of the transmission signal by ~~an identical~~ <u>the</u> target; and

a detector ~~means for~~ detecting a distance to the target and a relative speed with respect to the target in accordance with frequencies of <u>the extracted pair of</u> ~~two~~ projecting portions ~~forming the pair~~, wherein

the <u>extractor further</u> ~~pair extracting means includes means for~~ predicting a center frequency of peak frequencies of <u>the</u> first and second projecting portions at a predetermined ~~timing~~ <u>time</u> by using ~~a~~ <u>the</u> peak frequency of ~~a~~ <u>the</u> first projecting portion at a ~~timing a certain period of~~ <u>first point in</u> time before the predetermined ~~timing~~ <u>time</u> and ~~a~~ <u>the</u> peak frequency of ~~a~~ <u>the</u> second projecting portion at a ~~timing the certain period of~~ <u>second point in</u> time after the predetermined ~~timing~~ <u>time,</u> and ~~for~~ extracting ~~a~~ <u>the</u> pair of projecting portions acquired at the predetermined ~~timing~~ <u>time</u> in accordance with the center frequency.

5. (Currently amended) The radar according to Claim 4, wherein,

<u>the extractor excludes a combination of the first and second projecting portions at the predetermined time from pair candidates;</u>

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when a second projecting portion forming ~~a~~ the pair with the first projecting portion at the ~~timing before the certain period of~~ first point in time that is used for predicting the center frequency ~~at the predetermined timing~~ and that exhibits a frequency difference substantially equal to a difference between the peak frequencies of the first and second projecting portions forming the pair at the predetermined ~~timing~~ time does not exist, and/or

when a first projecting portion forming ~~a~~ the pair with the second projecting portion at the ~~timing after the certain period of~~ second point in time that is used for predicting the center frequency ~~at the predetermined timing~~ and that exhibits the frequency difference does not exist~~,~~

~~the pair extracting means excludes a combination of the first and second projecting portions at the predetermined timing from pair candidates.~~

6. (New) The radar according to Claim 2, wherein

the extractor extracts the pair of projecting portions by using, as the point in time, nT satisfying a relationship, $nT \approx fo/(2\Delta F \cdot fm)$, wherein n represents a natural number, T represents a measurement cycle in which frequency analysis is performed, 1/fm represents a modulation cycle including the upstream-modulation section and the downstream-modulation section, fo represents a center frequency of the transmission signal, and ΔF represents a width of a frequency shift in the upstream-modulation section and the downstream-modulation section.

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